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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/802,147	03/17/2004	Sethu K. Madhavan	GP-304612 (2760/165)	3953

7590 11/14/2008  
General Motors Corporation  
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EXAMINER
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PERILLA, JASON M

ART UNIT	PAPER NUMBER
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2611

MAIL DATE	DELIVERY MODE
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11/14/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/802,147	<b>Applicant(s)</b> MADHAVAN ET AL.	
	<b>Examiner</b> JASON M. PERILLA	<b>Art Unit</b> 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 17 September 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 20-42 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 20-42 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### DETAILED ACTION

1. Claims 20-42 are pending in the instant application.

#### *Response to Arguments*

2. The Applicant's remarks, filed September 17, 2008, have been fully considered, but they are not persuasive.

The Applicant's suggests that the prior art reference Preston et al (U.S. Pat. No. 7206305; "Preston") does not disclose the generation of a periodic data signal modulated with "periods of silence". The rejections below cite to Preston's column 6, lines 24-30, which state "[t]he preamble bits 73 and 79 **do not contain any of the digital data bits 29** from the data source [but] include a certain number of sacrificial bits that are not needed for detecting or encoding the MS packet 70." (emphasis added) The Examiner maintains that Preston discloses the modulation of a data signal with "periods of silence". Contrasted with Preston's "digital data bits", Preston's "sacrificial bits" do not contain any data.

The Examiner is permitted to interpret the claimed invention reasonably broadly in view of the invention's specification. Despite the Applicant's assertion that Preston's sacrificial bits can not be reasonably interpreted to be "periods of silence", the Examiner simply can not agree.

The specification of the instant application is wholly indefinite with reference to what constitutes a "period of silence". The specification's periods of silence are illustrated in figure 4 (i.e. periods t1-t2, t3-t4, and t5-t6) and are to be contrasted with the periods of data (i.e. periods t0-t1, t2-t3, and t4-t5). However, one is unable to

determine, according to figure 4 alone, what constitutes the periods of silence  $t_1$ - $t_2$ ,  $t_3$ - $t_4$ , and  $t_5$ - $t_6$ . With reference to the description of the figures provided in the specification, it is clear that the figures 3 and 4 are provided only as an representation of the underlying method of the invention and do not represent the actual input/output of the protocol transmission device 210 of figure 2. Specifically, the specification states that "[i]n operation, the altered protocol transmission  $S_{out}(t)$  provides **a continuous modulated data signal** for transmission over a voice channel of a wireless communication system." (pg. 12, lines 20-25; emphasis added). Therefore, it is clear that even the "periods of silence", although represented by a "flat line" in figure 4, are periods of modulation (although, perhaps, not modulated with data). The specification's use of the term "period of silence" does not automatically afford it any special or particular meaning. Further, there is nothing in the specification which would limit the "periods of silence" to anything beyond what is disclosed by Preston (i.e. periods of non-data). Rather, the specification actually supports such an interpretation.

Therefore, as broadly as claimed, a "period of silence" is considered to be a period of modulation without data which is clearly anticipated by Preston. Presently, the claims (as supported by the specification) do not particularly limit a "period of silence" to be anything more specific than a period without data communication. The Applicant argues that, because Preston's "sacrificial bits" are nonetheless converted into "tones", they can not represent "silent" periods. However, the "tones" of the sacrificial bits are nonetheless "silent" because they communicate no representative data and are specifically meant to be scaled, filtered, or distorted (col. 6, lines 29-31).

***Claim Rejections - 35 USC § 101***

3. 35 U.S.C. § 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 20-42 are rejected under 35 U.S.C. § 101 because the claimed invention is directed to non-statutory subject matter.

Regarding claims 20, 29, and 34, the claims are method claims but are not (1) tied to another statutory class (such as a particular apparatus) or (2) transform underlying subject matter. The steps of the method claims should be specifically tied to a statutory machine (i.e. physical hardware and not software) such that it is clear which particular hardware executes the method steps.

Regarding claims 21-28, 30-33, and 35-42, the claims are rejected as being based upon a rejected parent claim.

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the first paragraph of 35 U.S.C. § 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 33-42 are rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claim 33, the claim is rejected because the limitation providing that "the periods of silence comprise frame gaps during which no frequency shift keying modulation occurs" is considered to be new matter. For the reasons outlined in the arguments above, there is insufficient evidence in the originally filed specification to support the newly claimed "no modulation" occurring during a silence period. Rather, the specification supports ***a continuous modulation period*** even during the "period of silence" (pg. 12, lines 20-25; emphasis added).

Regarding claim 34, the claim is rejected for the same reasons as claim 33 above.

Regarding claims 35-42, the claims are rejected as being based upon a rejected parent claim.

### ***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 20-25, 29, 30 and 32 are rejected under 35 U.S.C. § 102(e) as being anticipated by Preston et al (U.S. Pat. No. 7206305; "Preston" – previously cited).

Regarding claim 20, Preston discloses a method of communicating data over a voice channel of a wireless communication system (abstract), comprising the steps of:

generating (fig. 4) a periodic data signal (fig. 6, i.e.  $f_1$  &  $f_2$  are each periodic) modulated with data (fig. 4, ref. 30; fig. 6, data bits "1" and "0") and periods of silence (col. 6, lines 24-30); and sending (fig. 2, ref. 19) the periodic data signal (fig. 2, ref. 26) as a voice communication through a vocoder (fig. 2, ref. 18) and over a voice channel (fig. 2, ref. 34) of a wireless communication system. Preston discloses a method of transmitting digital data using a cellular phone (fig. 2, ref. 14) commonly utilized for the transmission of audio voice signals. Preston explicitly discloses that "a problem arises when voice communication equipment, such as the vocoder, are used for transmitting digital data as a non-voice signal." (col. 1, lines 55-63). Specifically, the vocoder may recognize the data as noise and remove it (col. 1, lines 55-63). Therefore, Preston discloses careful encoding of the data by "controlling the amplitudes, time periods, and patterns of the synthesized frequencies used to represent the binary bit values." (col. 5, lines 23-33). Particularly, Preston discloses, as broadly as claimed, the inclusion of "periods of silence" or periods of non-data sacrificial bit transmission to prevent the vocoder from attenuating the transmission of wanted data (col. 6, lines 15-31).

Regarding claim 21, Preston discloses the limitations of claim 1 as applied above. Further, Preston discloses that the wireless communication system is a cellular network (fig.1).

Regarding claim 22, Preston discloses the limitations of claim 1 as applied above. Further, Preston discloses that the network transmission standard is CDMA (col. 4, line 54).

Regarding claim 23, Preston discloses the limitations of claim 1 as applied above. Further, Preston discloses generating the periodic data signal with a data sequence using frequency shift keying (fig. 6; col. 5, lines 45-50).

Regarding claim 24, Preston discloses the limitations of claim 1 as applied above. Further, Preston discloses that the duration of each of the periods of silence is within the range of about 25 to 1000 milliseconds. Preston discloses that each bit continues for a duration of 10 milliseconds (col. 5, lines 65-66). Furthermore, Preston discloses that the "period of silence" determined by the sacrificial bits is four bits long (fig. 5, "sacrificial bits"). Therefore, the period of silence is 40 milliseconds.

Regarding claim 25, Preston discloses the limitations of claim 20 as applied above. Further, Preston discloses receiving a first periodic data signal (fig. 4, ref. 30) and producing a second periodic data signal (fig. 4, ref. 69) by modulating the first periodic data signal with the periods of silence determined by the packet formatter (fig. 4, ref. 62) as applied in claim 20 above.

Regarding claim 29, Preston discloses a method of communicating data over a voice channel of a wireless communication system (abstract), wherein both data and voice are transmitted at the same time (col. 1, lines 60-65) to a call center (fig. 1, ref. 36). Furthermore, Preston discloses the remaining limitations of the claim as applied to claims 20 and 21 above.

Regarding claim 30, Preston discloses the limitations of claim 29 as applied above. Further, Preston discloses the remaining limitations of the claim as applied to claims 20 and 21 above.



Regarding claim 32, Preston discloses the limitations of claim 29 as applied above. Further, Preston discloses that the network transmission standard is CDMA (col. 4, line 54).

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 26-28 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Preston in view of Gardner et al (U.S. Pat. No. 7146174; "Gardner").

Regarding claim 26, Preston discloses the limitations of claim 25 as applied above. Preston does not explicitly disclose receiving a control signal, the control signal supplying parameters for a length of the periods of silence and timing between the periods of silence; and producing the second periodic data signal by modulating the first periodic data signal based on the received control signal. However, the use of control signals is notoriously known in the art as evidenced by Gardner. Gardner discloses, in a strictly analogous field of art, using a microprocessor (fig. 13, ref. 122) to provide a rate control signal to vocoders (fig. 13, ref. 120) to control the maximum data rate of non-speech data or speech based upon required or available energy (col. 10, lines 50-65). Therefore, as understood by one having ordinary skill in the art, it would have been obvious at the time which the invention was made that the encoders and vocoders of Preston could take control signals from a microprocessor to determine rates of speech

and data because it would permit changing the rate depending upon the available bandwidth for transmission. Furthermore, it is obvious that, when the data and speech rates are updated, the silent periods would be altered to accommodate the new rates. That is, the silent periods would be adjusted accordingly.

Regarding claim 27, Preston discloses the limitations of claim 20 as applied above. Furthermore, Preston in view of Gardner discloses the remaining limitations of the claim as applied to claim 26 above.

Regarding claim 28, Preston in view of Gardner discloses the limitations of claim 27 as applied above. Furthermore, Gardner discloses determining a response to transmitted information (fig. 11, refs. 62, 66 and 68). This received "response" is combined with the information to be transmitted for reverse link rate control (col. 9, lines 19-25). Therefore, it would have been obvious to one having ordinary skill in the art at the time which the invention was made that received "response" or feedback information can be utilized to perform rate control in the invention of Preston as suggested by Gardner. Moreover, this feedback may appropriately be utilized to change the length of the silence periods as applied in claim 26.

11. Claim 31 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Preston.

Regarding claim 31, Preston discloses the limitations of claim 30 as applied above. Preston does not disclose that step (a) is performed prior to step (b). Rather, Preston discloses that adding the periodic time intervals is performed before frequency shift keying. However, the reversal of the steps is not a patentably distinct step and is

within the abilities of one having ordinary skill in the art. The reversal of the steps is not suggested as providing a benefit or solving a particular problem. Furthermore, one skilled in the art would have expected the invention to work equally well in either mode of operation.

***Allowable Subject Matter***

12. No claims are allowed.

***Conclusion***

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JASON M. PERILLA whose telephone number is (571)272-3055. The examiner can normally be reached on M-F 8-5 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh M. Fan can be reached on (571) 272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/Jason M Perilla/  
Primary Examiner, Art Unit 2611  
November 10, 2008

/jmp/